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MENTAL STATES DURING PROLONGED HYPOKINESIA

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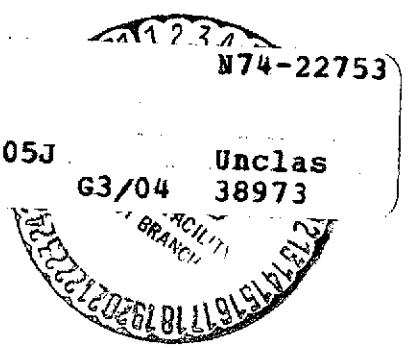

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16. Abstract

The author studied mental changes in 6 male normal examinees in the age group from 23 to 36 years. All six examinees were put on a bed regimen for 62 days. Three of them daily accomplished a special complex of physical exercises in a lying position. In all the examinees the main form of mental changes was expressd in a neurasthenic syndrome. These changes had certain regularities in their development, which were condit=ioned by the premorbid features of the examinees. The author stresses the significance for the mental state such psychological factors as apprehension of the duration of the experiment. The role of physical exercises on the mental states remains unclear because of the insufficient amount of obser-vations. However, the author expresses the belief that the reason for these changes may be explained primarily by such factors as the change of a habitual life pattern, monotony of the environmental situation, a cer-tain degree of isolation.

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MENTAL STATES DURING PROLONGED HYPOKINESIA

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The question of the effect of hypokinesia on man's mental state is dealt /1031* with in a number of works [1-4]. In these works observations were made of people confined to bed under ordinary hospital conditions or to "water beds." The experiments did not last longer than 12 days. Mental disturbances appeared /1032 as increased irritability, fatigability, reduction of ability to work, inclination to argue, slight depression. Similar changes are also described in isolation experiments where the limitation of motor activity was only partial, due to the small size of the room [5-9].

We observed 6 healthy males aged from 23 to 36 years, confined to bed under ordinary hospital conditions for 62 hours. They were allowed to turn over in bed without disturbing their horizontal position. Three of them performed a special set of physical exercises every day while lying down.

Some mental changes or other were observed in all subjects. The following stages could be distinguished. 1st stage (1-2nd day): state of the subject was characterized by high spirits, an active attempt at intercourse with those around him. In the wards on these days it was noisy, there was always music, singing, jokes and laughter. The subjects said that their mood was "good," "excellent," "fine." Nevertheless, in several were noted "agitation," with a slight shade of fear, uncertainty. This state was due to the unusual situation, not knowing what was going to happen and misgivings about the outcome of the experiment. To one degree or another this is also observed, for example, in athletes before a crucial competition ("starting condition").

* Numbers in margin indicate pagination of original foreign text.

2nd stage (3-6th day): period of physical discomfort. The subjects complained of unpleasant feelings, pains in various parts of the body, they said they were "uncomfortable in bed," they often turned over trying to find the most comfortable position. By this time the novelty and unusualness of the situation had disappeared and mood was to a certain degree determined by physical discomfort.

3rd stage (10-20th day): period of a certain adaptation to experimental conditions. Unpleasant physical feelings gradually disappeared, the subjects could lie for hours in one position without feeling the need to change it. Mental states were even and calm.

4th stage (20-35th day): period of beginning asthenic symptoms. The subjects complained that it was becoming difficult to lie down, they wanted to move, they were getting tired of the monotony, the sameness of the situation, things were the same day after day, there was nothing new; some, jokingly, said that only now did they realize how good it had been when they were "alive," when the present limitations did not exist. Symptoms of irritability and intolerance appeared. The subjects less readily entered into conversation with their neighbors, sleep in the majority became shallow, some dreamed more often.

Gradually symptoms of asthenia increased and by the end of the experiment the subjects had become irritable, touchy and capricious, they reacted violently to every little thing infringing on their interests. They themselves often correctly evaluated their state, saying that now everything irritated them: for example, that they were wakened early, they did not get what they asked for immediately, they were annoyed by certain ("unsympathetic") staff members. Conflicts developed more often with their neighbors and especially with the experimentors. Sleep disturbances were aggravated.

Here are some typical complaints of this period: time passes slowly, you don't know what to do with yourself; the frequent examinations (even the very slight ones) are annoying, especially those not stipulated on the schedule; it is difficult to concentrate on studies (some of the subjects were students),

nothing stays in your head.

Some individuals declared that sometimes they felt like "doing" something; often these intentions were carried out: for example, somebody all of a sudden began to cry in a loud monotone: "a-a-a." The cry was heard throughout the section. Some noted that they became "terribly irritable," sometimes they wanted to "throw something at somebody, to "tear something to pieces." One of the subjects complained that at times, especially toward evening, he "gets the blues," he frets, he would like to be home. /1033

By the end of the first half of the experiment neuropathologists noted signs of vegeto-vascular dysfunction (lability of vegeto-vascular reflexes, pulse, arterial pressure, etc.). Later these symptoms continued to increase. In addition, reduced auditory sensitivity and vestibular stability were established (otolaryngologists explained this in part as symptoms of asthenia).

These mental changes were typical of all subjects although the degree of severity differed. In some there were also other disturbances evidently connected with characterological features. For example, a premorbidly slightly hypochondriac subject often complained of general indisposition, some kind of indefinable feelings in his head: his head was heavy, it felt like things were coming apart inside, when he closed his eyes it felt as if his head were being thrown to the side. Two subjects with traits of mental infantilism showed more pronounced capriciousness and stubbornness, there were elements of puerilism in their behavior. And, on the other hand, in subjects with no premorbid characterological deviations, mental changes were less pronounced.

We must note that mental changes were slightly more pronounced in subjects not performing physical exercises; however, the small size of the group and the differences in premorbid features do not allow definite conclusions about the role of physical exercises.

In the very last days of the experiment all subjects were in a good mood (elation) and talkative. The subject of conversations was the impending end of

the experiment. In the majority sleep disorders were increased.

Several days before the end of the test it was explained that the experiment would be prolonged 2 days. In all subjects this caused a reaction of resentment, they unanimously stated that if from the very start it had been planned that the experiment would last for 62 days instead of 60, it wouldn't have mattered; now the additional 2 days seemed very long. This indicates the important role of psychological factors such as building up to the end of the test [4,8].

Immediately after the experiment ended the subjects were excited, uninhibited, gay. The continuously walked through the section, looked out of the windows, tried to talk to everybody. We must note that in subjects who had previously taken part in similar experiments, this reaction was less pronounced.

Noted on the first days after the end of the test were general weakness, poor tolerance of physical loads and reduced orthostatic stability.

Thus, the clinical picture, developing primarily in the second half of the experiment, corresponds to the typical neurasthenic syndrome. This is experimental neurosis in the form of neurasthenia. Its characteristics were a predominance of hypersthenic symptoms (irritability, explosiveness, activity) and comparatively mild symptoms of asthenia proper (debility, exhaustion, adynamia).

The question arises: what is the basic cause of these mental changes? Hypokinesia is a complex group of factors affecting the human body: reduction of motor activity, disturbance of hemodynamics, reduction of afferentation from various organs and systems of the body (mainly physical factors) and a certain degree of isolation, change in the usual life style, boredom, monotony of surrounding conditions (mental factors). /1034

It seems to us that the most "pathogenic" factor for mental activity was the complex of mental factors. Physical factors were less important, which was indicated in part by the described clinical picture of disturbances (predominance of hypersthenic symptoms over asthenia proper, more typical of the somatogenic

picture of asthenia).

In support of this point of view it can also be said that similar mental changes are described under conditions when the limitation of motor activity was very insignificant (isolation in a small room [5-8]) or nonexistant (small groups in Antarctic expeditions [10]). Lack of direct dependence of mental disturbances on duration and a certain dependence on the phase of the experiment as well as the "building up" to the final period of the test also indicate the primary importance of mental instead of physical factors.

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